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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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09/088,627 05/28/93 BOLAND

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EXAMINER

EDELMAN, R

ART UNIT

PAPER NUMBER

2153

DATE MAILED:

09/27/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/086,627

Applicant(s)

BOLAND, VERNON K.

Examiner

Bradley Edelman

Art Unit

2153

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7 and 9-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7 and 9-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This action is in response to Applicant's amendment and request for reconsideration filed on July 18, 2001. Claims 1-16 are presented for further examination. Claims 1 and 11-14 have been amended. Claim 16 is new.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-5 and 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Culbert (U.S. Patent No. 5,838,968), in view of Sumimoto (U.S. Patent No., 5,522,070).

In considering claims 1, 11, 12, and 13, Culbert discloses a method, a computer architecture, a computer system, and an article comprising machine executable instructions, for allocating resources on a computer, comprising:

means for monitoring at least two resources on the computer among at least a first process and a second process for allocation of computer resources on the computer ("resource manager 170" - col. 6, line 51 - col. 7, line 12);

means for assigning a priority to each of the at least two processes, the second process being assigned a lower priority than the first process (col. 9, lines 24-36);

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for the first process, means for setting a minimum resource allocation for the first process independent of the computer resources needed by other processes running on the computer (col. 7, lines 49-51; col. 8, lines 33-37; col. 9, lines 35-36, 54-55; col. 11, lines 5-6; wherein a task specifies a required amount of necessary resources that cannot be removed); and

means for redistributing computer resources on the computer so that the minimum resource allocation is guaranteed should insufficient resources be available (col. 9, lines 36-54, "while still providing the needed resources").

However, the system taught by Culbert does not disclose that the resources are distributed across a network, including at least two nodes. Nonetheless, systems for managing resource allocation for processes distributed across a network or multiple computers are well known, as evidenced by Sumimoto (see Abstract). Given the teaching of Sumimoto, it would have been obvious to a person having ordinary skill in the art to use the resource allocation scheme taught by Culbert for processes and resources distributed throughout a network, as taught by Sumimoto, so that the most important network distributed processes can be assured available resources.

In considering claim 2, Sumimoto further discloses the allocation being an allocation of computers and memory space on the network for the first process (col. 17, lines 57-63).

In considering claim 3, Sumimoto further discloses denoting usage of resources as a percentage (col. 16, lines 11-12). Therefore, it would have been obvious to denote the minimum allocation, as taught by Culbert, as a percentage of the resources, to insure that a minimal amount of processing power on each resource is wasted.

In considering claim 4, Culbert further discloses performing the monitoring step periodically (col. 8, lines 47-48).

In considering claim 5, Culbert further discloses that monitoring of the resources is performed continually (col. 8, lines 53-57). Sumimoto further discloses denoting usage of resources as a percentage. Therefore, it would have been obvious to denote the minimum allocation, as taught by Culbert, as a percentage of the resources, to insure that a minimal amount of processing power on each resource is wasted.

In considering claim 9, Culbert further discloses storing the minimum resource allocation in a storage device (col. 8, lines 25-28; wherein the allocation is stored in the utilization records, which are inherently stored on a storage device).

In considering claim 10, Sumimoto further discloses monitoring being performed by any of the nodes on the computer network (Fig. 3, Fig. 22, col. 17, lines 57-60, "LM").

In considering claim 14, Culbert further discloses redistributing including removing a computer resource previously assigned to the second process (i.e. degrading) and reallocating the removed computer resource to the first process (i.e. "priority," col. 9, lines 15-47). However, this is not done wholly irrespective of an amount of computer resources necessary for the second process to run on the computer network. Instead, if the resources on the system are completely filled and cannot be degraded any further, the resource allocation may be denied. However, this is a mere design choice. One having ordinary skill in the art would readily recognize that certain tasks may be of such utmost importance that it would be desirable to completely disregard lower priority processes and simply supply the required resources to the high priority task. Such a design choice would have been obvious in order to provide resource allocation for extremely important tasks that must be processed over all else.

In considering claim 15, Culbert further discloses that the assigning step is performed irrespective of amounts of computer resources necessary for each of the at least two processes to run on the computer network (col. 9, lines 24-26; assigning priorities is not related to the minimum required resource).

Claim 16 contains similar limitations to claims 13 and 14 combined, and is thus rejected under the same rationale.

2. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Culbert, in view of Sumimoto, and further in view of Hauser et al. (U.S. Patent No. 5,889,956, hereinafter "Hauser").

In considering claim 7, although the combined teaching of Culbert and Sumimoto discloses substantial features of the claimed invention, it fails to disclose setting a maximum resource allocation for the processes. Nonetheless, setting maximum resource allocation for processes using resources across a network is well known, as evidenced by Hauser. In a similar art, Hauser discloses a resource allocation system, which includes setting a maximum resource allocation for at least one process (col. 4, lines 53-56). Given the teaching of Hauser, a person having ordinary skill in the art would have readily recognized the desirability and advantages of including a maximum resource allocation, as taught by Hauser, in the system taught by Culbert and Sumimoto so that no one process could overwhelmingly occupy the system's resources. Therefore, it would have been obvious to include maximum resource allocation, as taught by Hauser, in the system taught by Culbert and Sumimoto.

Response to Arguments

In response to Applicant's amendments and request for reconsideration filed on July 18, 2001, the following factual arguments are noted:

a. Examiner's previous office action does not state any desirability for modifying the system taught by Culbert with the system taught by Sumimoto.

- b. In the Culbert system, the minimum requirement of computer resources for the high-priority process to run properly is not guaranteed.
- c. The Culbert system does not reallocate the removed amount of computer resources to the first process **irrespective of computer resources necessary for the second process to run** on the computer network.

In considering (a), Applicant contends that Examiner's previous office action does not state any desirability for modifying the system taught by Culbert with the system taught by Sumimoto. Examiner respectfully disagrees. Examiner's previous office action stated, "it would have been obvious to a person having ordinary skill in the art to use the resource allocation scheme taught by Culbert for processes and resources distributed throughout a network, as taught by Sumimoto, *so that the most important network distributed processes can be assured available resources.*" (emphasis added). Particularly, resource allocation among processes within a single computing system performs the same function as resource allocation among processes within a network. Both systems attempt to allocate optimal resources to processes that must be processed. The allocation system taught by Culbert is especially desirable because it allows for prioritizing of processes, while also guaranteeing a minimal amount of resource allocation for specific processes. Given the teaching of Sumimoto, which discloses a distributed system for allocating resources to processes across a network, a person having ordinary skill in the art would have readily recognized the desirability and advantages of using the resource allocation method taught by Culbert

for a distributed network system so that the most important distributed processes in a distributed network can be assured available resources.

In considering (b), Applicant contends that in the Culbert system, the minimum requirement of computer resources for the high-priority process to run properly is not guaranteed. Examiner respectfully disagrees. Column 9, lines 27-28 states, “[t]asks with lower priority will always be degraded as much as possible before any high priority task.” This establishes that Culbert uses a prioritized resource allocation. Culbert further states, “[d]egradation may be performed under two different task execution environments... in both situations, resource manager 170 seeks a global optimal configuration,... *while still providing the needed resources.*” (emphasis added). Thus, the notion of “still providing the needed resources” speaks to a minimum guaranteed resource allocation.

In considering (c), Applicant contends that the Culbert system does not reallocate the removed amount of computer resources to the first process **irrespective of computer resources necessary for the second process to run** on the computer network. While the system taught by Culbert does not include such absolute language, it clearly establishes a prioritization scheme for resource allocation, in which “tasks with lower priority will *a/ways* be degraded as much as possible before any high priority task.” (col. 9, lines 27-28; emphasis added). Furthermore, Culbert states, “[t]he task can respond that it can not be changed and can not give up any resources.” (col. 11,

lines 5-6). This clearly states the desirability for particular tasks to have a guaranteed level of resource allocation. However, the resource allocation in Culbert is not done *wholly* irrespective of an amount of computer resources necessary for the second process to run on the computer network. Instead, if the resources on the system are completely filled and cannot be degraded any further, a request for additional resources may be denied. However, this is a mere design choice. One having ordinary skill in the art would readily recognize that certain tasks may be of such utmost importance that it would be desirable to completely disregard lower priority processes and simply supply the required resources to the high priority task. Such a design choice would have been obvious in order to provide resource allocation for extremely important tasks that must be processed over all else.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley Edelman whose telephone number is (703) 306-3041. The examiner can normally be reached on Monday to Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess, can be reached on (703) 305-4792. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-7201.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-3900.



GLENTON B. BURGESS
SUPERVISORY PATENT EXAMINER
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BE

September 25, 2001